



# HINTS ON TINTS

AND

## HOW TO MIX THEM

ILLUSTRATED BY

ONE HUNDRED AND SEVENTY-FIVE  
SPECIMENS OF TINTS

WITH AN

INTRODUCTORY ESSAY

ON

# COLOR AND COLORS

BY

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*"The Art of Pastel Painting, etc."* *"How to thoroughly master Landscape  
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*"Water Color Album."*

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## PREFACE.

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THIS little book is the result of a constant inquiry for some information as to "how to mix colors." Beginners constantly find the want of such knowledge a serious stumbling block to their progress, and the object of this volume is therefore to assist them in the right direction, and help develop whatever ability or even genius they may naturally be endowed with.

No claim is made that this manual contains the only or the best method, but, as it is, it is offered as the result of not only much study, but also practical experience; and the author hopes that its readers who are undertaking the task of self-tuition will find its perusal profitable and invaluable.

HENRY LEIDEL.

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## COLORS AND TINTS.

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The proper mixing of tints and colors is a knowledge acquired largely through practical experience. Amateurs and even artists are sometimes at a loss to attain a required result from lack of this experience, and the object of this work is to aid the embarrassed novice by giving such detailed information as to thoroughly equip him to successfully cope with this perplexing problem.

Color mixtures are attained in very various ways, viz., by direct mixing of the colors upon the palette before applying; by glazing, that is, by putting a transparent or semi-transparent color over another already applied tone. This effects a much more rich and brilliant result than by direct mixture; but it has one drawback, namely, that it is not so permanent, especially in the lighter tints; and by mixture in the dry state. This latter method is, however, only theoretically applied.

Cold tints are those in which blue predominates, and warm tints are those in which yellow and red prevail. Yellow, however, does not always effect warm tints: as, for instance, yellow green is no warm tone, but, by the addition of red, it at once acquires warmth. White and neutral grey act similarly to blue, and produce cold tones, according to the quantity in which they preponderate.

The following characteristic of warm tints is of especial note: With increasing light, the luminosity of the warmer tints grows more rapid than that of the colder tones. In the brightest and strongest sunlight, all tints assume a whitish appearance, without losing their character of warmth or cold. By decreasing light, the warm tints lose their luminosity more rapidly than the cold tones; by continued decreasing of the light, the luminosity of bright red will at a certain stage equal that of a cold violet, and from this down will appear darker than the latter.

All warm tints approach, and all cold tones recede from, the eye.



An aid in the mixture of tints and the study of harmony and contrast is an understanding of the theory of color.

## THEORY OF COLOR.

There are three distinct classes of colors, viz., Primary, Secondary and Tertiary.

The Primary Colors are such as yield others by being compounded, but are not themselves capable of being produced by composition of other colors. They represent the natural clear prismatic colors, and are

	YELLOW,	RED,	BLUE.
Their contrasts are	purple,	green,	orange.

The Secondary Colors are such as can only be composed of any two of the Primary Colors. They are also pure prismatic colors, and are

	ORANGE,	GREEN,	PURPLE
and are composed of {	yellow	yellow	red
	and red,	and blue,	and blue.
Their contrasts are	blue,	red,	yellow.

The Tertiary Colors are such as can only be composed of two Secondary or the three Primary Colors, and are

	OLIVE,	BROWN,	GREY,
and are composed of {	orange	orange	green
	and green,	and purple,	and purple.
Their contrasts are	purple,	green,	orange.

Black and white are extreme colors, comprehending all other colors synthetically, and affording them all by analysis. Pure white, as a ground tone, always takes a prominent place. Its greatest contrast is black. Both colors equally combined produce a full grey. The same can, however, be effected by other contrasting colors, as, for instance, orange and blue or yellow and purple, or even red and green; contrasting colors being so opposing that, when combined, they completely destroy one another.

The power of colors in contrasting each other agrees with their correlative powers of light and shade, and is to be distinguished from their power individually on the eye, which is one of light alone. Thus, although orange and blue—literally the colors of extreme heat and cold, and which are equal powers as



regards each other—as respects the eye, they are totally different and opposed, for orange is a luminous color, and acts powerfully in irritating, while blue is a shadowy color, and acts contrarily in soothing that organ. The same occurs in various degrees with other colors.

Transparency and opacity constitute another contrast of coloring. The first appertains to shade and blackness and the latter to light and whiteness. Even contrast has its contrast, for graduation or intermediaries are antagonistic to contrast or extremes. Consequently upon the right management of contrasts and graduation depend the harmony, the breaks, the tone, the effect and expression of a picture.

These contrasts may be variously or totally conjoined. Thus, in contrasting any color, if we wish to have light or brilliancy, we degrade or cast its opposite into shade; if it should be warm, we cool its antagonist, and if transparent, we oppose it by an opaque contrary, or *vice versa*. Indeed, in practice, all this must be in some measure combined.

### CHARACTER OF COLORS.

WHITE, in a perfect state, should be natural in tone with regard to color, and absolutely opaque. Besides its use as a color, it is the instrument of light in painting, and compounds with all colors, without change but in tint, that is, it does not change or defile any color, though it is changed and defiled by all others.

It is of great value as a ground to work upon, as the weakest application of color is not changed by it.

While all other colors weaken and take neutral tones with distance, white remains pure the longest. It is therefore advancing, that is, it brings the subject nearer to the eye. In combination with yellow, it possesses the same properties, but does not when mixed with red. With blue or black it retires, and gives to those colors the tones of the atmosphere.

Used pure, it advances all other colors by its contrast. Over-use of it, however, produces a chalky effect. Glaring lights are seldom of large dimensions, just as the deepest depths are always small. Placed side by side, they form the strongest contrasts, and, with conscientious use, immense strength. The use of pure white, therefore, requires due deliberation.

In combination with all colors, except yellow, it forms cold tints, and is therefore to be particularly studied in regard to mixing tints.

YELLOW is nearest in relation to white, and forms in its paler tints the transition of light into color. It is a most advancing color, and is but slightly changed by distance. It is a warm color, and in a painting where warm colors are required, it is, in connection with red, the principal means to achieve this.

It is of use in almost all mixtures and is very sensitive against blue, the smallest quantity of which immediately changes its color.

ORANGE is a secondary color, and is composed of yellow and red. A perfect orange is such as will neutralize a pure blue of equal quantity either in intensity or surface. It is a warm color, and is discordant when standing alone with yellow or red, unresolved by their contrasts, purple or green.

It is an advancing color. In nature it is effective at a great distance. Like yellow, it is also affected by blue.

RED is a very advancing color. It is increased in warmth by admixture with yellow, while with blue it becomes cool. As it is, however, more congenial with yellow, it therefore partakes more of the character of the same in its effects of warmth. As a color it is beautiful, powerful and cheering, and communicates these qualities to its secondary colors.

Under the influence of light and distance, the action on the eye of the power of vision is diminished upon viewing red in strong sunlight, while on the other hand red appears to deepen rapidly in a declining light. These qualities give it great importance, rendering it difficult to manage and require it to be kept in general subordination in a painting.

PURPLE is a secondary color, and is composed of red and blue. It is the coolest of the secondary colors, and the nearest, also, to black or shade. It is a retiring color which reflects but little light, and declines in proportion to the distance it is viewed.

BLUE is the third and last of the primary colors, and bears the same relation to shade that yellow bears to light. It is a retiring color, and is thrown back by all colors in greater or less degree.

It is a cold color and of quiet disposition, and communicates these properties more or less to all colors it is compounded

with. It is pleasant to the eye, and where delicate, quiet tones are needed, or in the deep, dark shades, it is of much use.

GREEN is composed of the extreme primaries—yellow and blue. It occupies the middle station in the natural scale of colors and in relation to light and shade. In its tones, green is either cool or warm, sedate or gay, as it inclines to blue or yellow. Yet it is, in its general effects, cool, calm, temperate and refreshing.

As a color individually, green is eminently beautiful and agreeable. It has little power in reflecting light, and therefore it is a retiring color and readily subdued by distance.

BROWN, in its widest conception, has been used to comprehend every denomination of dark broken color, and, in a more limited sense, is the rather indefinite appellation of a very extensive class of warm or tawny shade of colors. There are browns of every shade except blue, as such a predominance of a cold color would immediately carry the compound into grey.

Brown, properly, denotes a warm, broken color of which yellow is the principal constituent. It is a sober, sedate color, grave and solemn but not dismal, and contributes to the expression of strength, stability and solidity, and in a minor degree to the serious and sad.

GREY is the natural correlative of brown. It is the color of space, and has the property of diffusing breadth in a picture, while at the same time it furnishes good connecting tints for harmonizing the general coloring. Grey is, therefore, among the most essential colors, which, however, must not be suffered to injudiciously predominate in cases where the subject does not require it.

It is a sober, modest color, contributing to the expression of gloom, sadness and fear, bordering, in these respects, upon the powers of black.

BLACK is the absence of light—the extreme opposite of white. To be perfect it must be neutral colors individually, and absolutely transparent or destitute of reflection in regard to light.

Its use in painting being to represent shade or depth—of which it is the element—in colors or a painting, as white is of light.

All other colors are by admixture with black lowered in tone. Pure black is seldom used, and a painting which in its general

tones is rather dark can be lightened by the judicious use of a little black. To concentrate depth, white and black are often placed side by side.

### COLOR.

The word color comprises much in itself, as every shade, tone or tint, if primary, secondary or tertiary, is designated by the term of color. Primary colors, such as pure red or yellow or blue, are but little used in a picture, as colors are primary only when in their pure state, and undisturbed by glaring light, by shadows or reflections; these latter conditions at once effect a change of tone in any color; as, for instance, if you place a red silk handkerchief upon a chair in the sunlight, marked changes in the tone of the same will immediately be noticed. The color indeed remains the same, but the action of the light and the reflections from various objects in its vicinity form remarkable changes in the tone of the same. This can also be readily noticed by the variation of the color of the woods in different lights and at different times of the year. Color is therefore dependent upon exterior circumstances, especially light; and by carefully studying these various changes of color, color contrasts, purity and harmony, the eye is trained to distinguish the slightest variation; for to be a good colorist it is necessary to know the different relations of colors—their combinations and harmonies as well as their mutual oppositions and annihilations.

### COLORS.

While in former times the artist was his own color-maker—that is, he ground them fine with oil and kept them in small bladders, out of which the color was squeezed through a small cross cut in the bottom of the same—this has been totally superseded by the collapsible tin tubes in which finely ground colors can be bought at any art store in any quantity. These tube colors remain in a fresh and good condition for a long time, but eventually become dry, in which latter state they can be cut out of the tube and reground with a little oil and turpentine, though it is better to replace them with fresh colors.

The quantity of oil needed by pigments in their preparation as oil colors is astonishingly different, for the body colors, as white, the chromes, etc., need about 12-20 per cent., iron oxides



30, madders 60, ochres 60-75, terre vert 100, Prussian blue, the blacks 112, cobalt 125, burnt sienna 180, and, what is more remarkable, raw sienna requires about 240 per cent.

Those colors that require but a little oil in their preparation are also but little apt to change, while those which need larger quantities deepen more or less in tone. Indiscriminate use of oil as a thinning medium while painting will result in the changing of the colors, the cracking of the surface of the painting, and the reducing of the durability of the same.

Beginners should be careful not to squeeze more color on their palettes than needed at one painting, as colors kept on a palette overnight are apt to dry a skin, thereby making them unfit for further use. A good plan for keeping colors, which are not all used, fresh, is to place them upon a small china palette and immerse the same in water until they are to be used again.

## COLOR-MAKING.

A pigment is a preparation used to impart color to bodies. A pigment mixed with a medium constitutes a color, as oil-colors, water-colors, etc.

The colors used by the ancients were mainly derived from native earths, and as these earths and substances had passed through the wear and tear of centuries, they were therefore extremely permanent.

With the advancement of the science of chemistry, artificial colors were gradually discovered, and the function of the color-maker naturally sprang into existence. The colors in use at the present time are mostly all of them either partly or wholly artificial compounds.

Color-making is an important branch of industry in Europe, and has been so specialized that some makers restrict themselves to the manufacture of a certain color in which they excel, and consequently enjoy a world-wide reputation. Skillful color-making requires great experience as well as a thorough knowledge of chemistry. Colors can be analyzed to some extent, but there is a vast difference between the analysis and the successful manufacture of a color. Mostly all colors are made by certain secret processes, which are jealously guarded by the manufacturer.

The above has reference to the making of dry colors only ; and the function of the manufacturer of colors for artists' use, either in oil or water, is a distinct branch of its own. This is simply the adding of a certain amount of a binding medium to the dry colors, and then thoroughly and finely grinding the same upon mills constructed especially for that purpose.

The erroneous idea prevalent among many amateurs, and, unhappily, also artists, that American colors are not reliable and fade, is a mistaken impression which does not rest on fact, but principally on unwarrantable prejudice. If those biased pretenders, who constantly laud their preference for certain European makes of colors for their reliability, etc., were obliged to substantiate their partiality with facts, they would quickly be at a loss to account for their prejudice.

All dry colors used in the manufacture of artists' colors are imported from Europe, for the simple reason that as yet no fine dry colors are being made in this country, and consequently, if, as above stated, the best quality of European dry colors are used and combined with a proper medium, so as to be suitable for either oil or water colors, as the case may be, and the same then thoroughly ground, so that they are fine, and either wash well for water or work buttery for oil colors, there should be no reason why such colors as these are not the equals of any other make.

Accidental circumstances often injure the colors, the blame of which is then laid to the manufacturer ; of these, nothing is more to be guarded against than the presence of soap and alkali, too often left in the brushes after washing. It is therefore necessary, when washing brushes, that they are thoroughly cleaned and rinsed.

## THE PERMANENCE OF COLORS.

No color is so permanent that nothing will alter it, and on the other hand, none is so fugacious but that it will remain lasting under favorable circumstances.

Genuine ultramarine, which will endure for centuries under ordinary circumstances, may at once be destroyed by a drop of lemon juice ; and carmine, which is generally fugacious, will, when excluded from light and air, last fifty years or more.



White lead will retain its freshness for ages in pure atmosphere, but is blackened by a few hours' exposure to foul air.

It is, therefore, durability under the ordinary conditions of painting which entitles a color to the character of permanence

## WHITE COLORS.

### CREMNITZ WHITE

is a white carbonate of lead which derives its name from Cremnitz, in Austria, where it is manufactured. It is made in small square cakes of a cubical form. It is the whitest and possesses the best body of all white leads.

### FLAKE WHITE

is an English white lead in form of scales or plates, sometimes grey on the surface. It takes its name from its figure, is equal in body to Cremnitz white and is an oxidized carbonate of lead, not essentially differing from the above.

### SILVER WHITE

is brought from Paris in the form of drops, is sometimes preferred for its exquisite white, though it has less body than either Cremnitz or flake white. These whites are all unfit for general use as water colors, but are good in oil.

### ZINC WHITE

is an oxide of zinc lacking the body and brightness of the white leads, but perfectly durable both in oil and water. It is a very slow drier in oil, and is used instead of the white leads when it is desired to keep the color longer wet. It is very permanent

### CHINESE WHITE

is a preparation of oxide of zinc, the discovery of which has proved an incalculable boon to water color artists, who formerly had no white which combined perfect permanence with good body in working. It is beautifully white, and possesses the desirable quality of density.

### CONSTANT WHITE

is sulphate of barium. It has no body, and is not worth the consideration of the artist.

## CHINA WHITE

is an earthy white pigment. It has no good qualities and is used but very little.

## YELLOW COLORS.

## NAPLES YELLOW

is a compound of the oxides of lead and antimony. It was formerly prepared at Naples, hence the name. It is perfectly durable and trustworthy. It is opaque and in this sense of good body. It is not changed by sunlight and is a safe color to use in oil. It is not so reliable when in water, as it is apt to change even to black. It should not be mixed with a steel palette knife, but with a horn or ivory spatula. It is now made in five shades, viz., light, medium, deep, reddish and greenish.

## ANTIMONY YELLOW

is an obsolete deep variety of Naples yellow.

## JAUNE BRILLIANT

is a mixture of carbonate of lead and sulphate of potash, and is very near in color to Naples yellow. It is often used in place of white when mixing light tints. It is permanent both in oil and water.

## BRILLIANT YELLOW

is but another name for jaune brilliant.

## AUREOLIN

is a double nitrite of potassium and cobalt. It is the nearest approach to a perfect yellow in existence. A pure, brilliant, transparent color which in its palest tints is permanent. Its color is the nearest approaching the yellow of the solar spectrum known. In all mixtures and combinations, it imparts an uncommon freshness, brilliancy and purity. It is permanent both as an oil and water color.

## COBALT YELLOW

is synonymous with aureolin.

## CADMIUM

is a sulphide of cadmium. It is a good drying color, manufactured in four shades, viz., lemon, pale, deep and orange, which latter is described in the orange colors. Cadmium deep, which is

the pure color, is a lustrous and very intense orange yellow. It is very permanent and mixes well with all colors. It is invaluable both in oil and water. The lighter cadmiums contain more sulphur and are therefore less permanent. Cadmium deepens in the shade or when confined in the dark, but quickly regains its color when exposed to the light.

#### AURORA YELLOW

is a special preparation of cadmium. It is a brilliant normal yellow, tending neither to pale nor deep cadmium, but about between the two, with a remarkable quality of brightness and purity of color to it. It is very permanent, and works well in both water and oil.

#### CITRON YELLOW

is a chromate of zinc. It is of a pale lemon yellow color and but slightly soluble in water. It is not permanent and often changes to green.

#### ZINC YELLOW

is another variety of citron yellow.

#### CHROME YELLOW

is a chromate of lead. It possesses a good body, but is liable to fade. It is capable, however, of resisting the sun's rays for a long time. It is made in five shades and somewhat resembles the cadmiums in color; the shades are lemon or light, medium, deep, orange and deep orange, the last two are described among the orange colors. The difference in shade depends upon the proportion of chromic acid to oxide of lead. They mix well both in oil and water, though they produce serious changes upon several colors, ultimately destroying Antwerp or Prussian blue when used to compound greens.

#### LEMON YELLOW

is a chromate of barium. It is perfectly permanent, and is the only chromate which can be called so. It is made in two shades, the pale lemon and the lemon yellow. Lemon yellow is a beautiful, light vivid color of a shade as its name implies; the pale lemon yellow is more of a primrose tone, but precisely the same in its properties. It is semi-opaque but possesses remarkable strength and works pleasantly, both as an oil and water color.

## YELLOW ULTRAMARINE

is another variety of chromate of barium, with much of the same properties as lemon yellow.

## PERFECT YELLOW

is synonymous with yellow ultramarine.

## STRONTIAN YELLOW

is, when pure, a chromate of strontian, which, however, is very fugacious. Strontian yellow, as now sold, is but a mixture resembling the original color and very permanent. It is of a delicate primrose color, and is used in oil only.

## ORIENT YELLOW

is of a delicate golden shade, bright and shining, resembling a lustrous and semi-opaque Indian yellow. It is of great depth and richness, and is absolutely permanent. It is used in oil only.

## MARS YELLOW

is an artificial ochre of the character of raw sienna. It is more transparent as well as richer in color than the ochres, which it also resembles in its other qualities. It is absolutely permanent, is a good drier, and used both as an oil and water color.

## KINGS YELLOW

is a sulphureted oxide of arsenic. It is also found native in China. In color, it is a bright and pure yellow, fairly permanent, and used both in oil and water. It will not bear mixing with any of the lead colors, and is a deadly poison.

## ORPIMENT

is but another name for kings yellow.

## RAW SIENNA

is a ferruginous native pigment of a dull warm yellow. It is very transparent and is but little liable to change by the action of light, time or impure air. It will, however, deepen in tone in the dark. It is an invaluable color, both in oil and water.

## YELLOW OCHRE,

as well as all other ochres, is a native earth, found in almost all countries, consisting of silica and alumina colored by sesquioxide of iron. It is an indispensable and permanent, bright but

not very vivid yellow, and is semi-opaque. It is very valuable, both in oil and water, though somewhat slow-drying in the former. It mixes well with all colors.

## OXFORD OCHRE

is an English variety of yellow ochre.

## ROMAN OCHRE

is deeper and cooler in shade and possesses more body, but in other respects it is similar to yellow ochre.

## BROWN OCHRE

is a dark colored yellow ochre, not materially differing from the preceding.

## TRANSPARENT GOLD OCHRE

possesses the most brilliant tone of all the ochres. It is a transparent, pure, clear yellow of the character of raw sienna. It is much employed, both as an oil and water color, affording useful and permanent tints.

## YELLOW MADDER

is the most concentrated lake prepared from quercitron bark. It is a very bright, powerful and transparent yellow, but is a bad drier in oil. It is fairly permanent and should not be compounded with the metal colors.

## YELLOW LAKE

is a simpler preparation of the quercitron bark. It is lemon in tone, but in other respects similar to the preceding, and is used both as an oil and water color.

## ITALIAN PINK

is another variety of, but richer in color than, yellow lake. It possesses the same properties, and finds use both in oil and water. The name is an absurdity, as there is nothing pink about it.

## DUTCH PINK

is synonymous with the preceding.

## GAUDE LAKE

is a decoction of the plant "*Reseda luteola*." It is a brownish yellow and not very permanent. It is almost obsolete and used only in oil.



## GAMBOGE

is a concrete vegetal substance of a gum-resinous nature, which exudes from the bruised leaves and young shoots of the "Yokathu" tree of Ceylon and Siam. In color it is a beautiful, bright and transparent yellow, but not of great depth. It is fairly permanent, and especially so when used as a water color. It is lowered in tone to some extent by impure air, but is not easily discolored by the action of lead. It should not be mixed with the metal colors.

## EXTRACT OF GAMBOGE

is the coloring matter of gamboge separated from its impurities and compounded with alumina. It is thereby improved in color; otherwise it possesses the same properties as the preceding.

## INDIAN YELLOW

consists of euxanthate of magnesia, and is produced from the urine of the camel. It is of a beautiful pure yellow color and contains more depth and greater body than any gamboge. It is not affected by sunlight or foul air, but is not lasting in ordinary light and air. It works well in both water and oil, and should not be mixed with the cochineal colors.

## GALLSTONE

is an animal calculus formed in the gall bladder of oxen. In color it is a beautiful, deep toned, golden yellow. It is highly reputed as a water color, but in oil it is not eligible. It is very fugacious, and the color sold under that name is an artificial compound resembling the original, but much more permanent

## MASSICOT

is an oxide of lead of a pale yellow color. It has the same properties as white lead, and if used pure, is permanent in color; otherwise it becomes white. It is only used in oil, and not much in that.

## JAPAN YELLOW

is a decoction of a tree called "Bixa orellana." It is of an orange-yellow color and is fairly permanent in oil. It is not used in water.



## ORANGE COLORS

in general.—Orange is a secondary color and is composed of yellow and red. A perfect orange is such as will neutralize a pure blue of equal quantity, either in intensity or surface. It is a warm color, and is discordant when standing alone with yellow or red, unresolved by their contrasts, purple or green. Orange is an advancing color. In nature it is effective at a great distance.

There are but few orange colors, and these are on the whole satisfactory, both in regard to permanency and color.

## BURNT SIENNA

is, as its name implies, a calcined raw sienna. It is of a brown orange color, very rich, deep and transparent. It is an invaluable, permanent and well drying color. In other respects it possesses the properties of raw sienna and is used in oil and water.

## MARS ORANGE

is an artificial oxide of iron, and in color is a subdued orange very similar to burnt sienna. It is of great purity and is semi-transparent. It is very permanent and dries well. It should not be compounded with colors affected by iron. It is used both as an oil and water color.

## ORANGE VERMILION

is a sulphuret of mercury. Of a clear but not bright orange tone. It resembles chrome red in appearance, but is not subject to the changes of the same, being a perfectly durable color in both oil and water. It is somewhat slow drying and of great strength. In other respects it is like other vermilion, which are described among the red colors.

## FIELD'S ORANGE VERMILION

is a similar preparation to the preceding.

## CADMIUM ORANGE

is a sulphide of cadmium. It is an exceptionally brilliant and lustrous color, and is perfectly permanent, being unaffected by exposure to either light, air or damp. It is of great depth and power, and is of use both in oil and water.

## PERSIAN ORANGE

is a rich, luminous orange of great strength. It is fairly permanent, and works well in both oil and water. It is the most brilliant of all orange colors.

## NEUTRAL ORANGE

is a compound of cadmium yellow and Venetian red. It finds use as a water color only and is permanent.

## CHROME ORANGE

is a basic chromate of lead. It is a beautiful orange color and is one of the most durable of the chromates of lead. It is characterized by power and brilliancy and is less liable to change than the chrome yellows. It is used both in oil and water, but should not be mixed with vegetal or organic colors.

## CHROME ORANGE DEEP

is more red in color, but does not otherwise differ from the preceding.

## RED COLORS

in general.—Red is a very advancing color. It is increased in warmth by admixture with yellow, while with blue it becomes cool; it is, however, more congenial with yellow and therefore partakes more of the character of the same in its effects of warmth, of the influence of light and distance and of the action on the eye, by which the power of vision is diminished upon viewing red in a strong light, while, on the other hand, red itself appears to deepen rapidly in a declining light. These qualities give it great importance, rendering it difficult to manage and require it to be kept in general subordination in a painting.

As a color red is beautiful, powerful and cheering, and communicates these qualities to its secondary colors. Its contrasting color is green. The red colors, both in oil and water, are generally good and leave almost nothing to be desired.

## VERMILION

is a sulphide of mercury. It is found native, but as it is very scarce, it is in this state commercially obsolete. Vermilion as sold is an artificial compound. The best vermilion now made are of American make, though usually sold as English vermilion.

ion. It is of deep bright red, and when well made is one of the most permanent colors, being entirely unaffected by light, time or foul air. It possesses great body and weight and is a somewhat slow drier. It may be safely mixed with other colors, but is apt to separate on account of its great weight; it is therefore best to use it only with the heavier colors. It is used both as an oil and water color.

#### SCARLET VERMILION

is similar to vermilion, differing only in tone, being more scarlet. It is used both in oil and water and washes much better than the preceding.

#### EXTRACT OF VERMILION

is identical with scarlet vermilion.

#### CHINESE VERMILION

inclines to crimson and is cooler than vermilion. It is found in China in so pure a state as to require grinding only to become a perfect vermilion.

#### FRENCH VERMILION

is identical almost with vermilion. It is pale in tone and is used in oil only. Vermilions have the reputation of fading, but this is not so. A vermilion that is properly made is strictly permanent. Ordinary vermilions are colored with lake or carmine, or with orange or scarlet, and these adulterations fade and become black, hence the ill-fame of vermilion.

#### MADDER CARMINE

is the coloring matter of the root of the madder plant, precipitated upon a base of alumina. The madder plant, "*Rubia tinctorium*," is largely grown in Germany, France and Holland. The coloring matter obtained from the same is called "alizarin." Fresh madder roots do not contain any appreciable quantity of alizarin, but a large amount of a glucoside called "rubian." After some time, however, the roots undergo a process of fermentation and the rubian is decomposed thereby into alizarin and glucose. The madders are in color from the deepest rose to light pink, and in tones both warm and cold. They are not liable to change by the action of either light or impure air nor

by admixture with other colors. They are, however, slow driers, work well in both oil and water and improve in tone in time.

Madder carmine is the richest, deepest and most transparent of the madders. It is the only permanent carmine, either in oil or water.

#### MADDER LAKE

is less intense than the preceding and without its carmine tone. It is a rich color, tending neither to crimson nor scarlet.

#### ROSE MADDER

is another synonym for madder lake.

#### PINK MADDER

is a weaker preparation of madder lake; in other respects it is the same.

#### ROSE DORE (oil color)

is a pink madder with a yellowish cast.

#### REMBRANDT'S MADDER

is a madder lake with a yellowish tinge to it. It was much used by Rembrandt, hence the name.

#### CAPUCINE MADDER

is a madder lake, slightly brownish in tone.

#### ROBERTS LAKE

is synonymous with madder lake, and made in various shades, as brown, yellow, etc.

#### CARMINE

is the coloring matter extracted from the cochineal insect, "*Coccus cacti*," a native of Mexico. The coloring matter is not in a free state, but exists in the form of a glucoside called "carminic acid," which is separated into carmine and glucose by the action of acids. Carmine is that preparation of cochineal which contains the most coloring matter and the least alumina base. It is a rich, deep and most intense color, which is fairly permanent under favorable conditions. It has great power in its full touches, possesses considerable clearness in the pale washes and works admirably both in oil and water, though it dries slowly in the former. All cochineal preparations do not bear mixing with the lead colors.



## CARMINE NO. 2

is an inferior preparation, somewhat similar to the above, but has not the power nor depth of the same. It is used only in oil and is a bad drier.

## CRIMSON LAKE

is a cochineal preparation, containing more aluminous base than carmine and is therefore weaker in color. It is not so deep nor as brilliant as carmine, but possesses a certain bloom not perceptible in the latter. It is more generally useful than carmine, but equally fugacious. It is affected by a strong light and ultimately destroyed. It is a bad drier, and is used both in oil and water.

## CARMINE LAKE

is similar in all respects to crimson lake but that it contains more coloring matter.

## SCARLET LAKE

is a crimson lake tinted with vermilion. It has less permanency than crimson lake, as vermilion has a destructive action on cochineal lakes. It is used both in oil and water.

## INDIAN LAKE

is prepared from the "lac" or "lacca" of India—a resinous secretion found on the branches of certain plants. Its color is rich, transparent and deep, though less brilliant but more durable than those of cochineal. Used thickly it is of great body and much permanency. It should not be compounded with the lead colors, and is used only in oil.

## CAPUCINE LAKE

is identical with the preceding, but has a brownish cast.

## PURE SCARLET

is an iodide of mercury. It is a most vivid and beautiful scarlet color, exceeding the brilliancy of vermilion, to which it is equal in body but inferior in permanence. It is soon destroyed when compounded with the metal colors, and fades altogether when exposed to light and air. It is used in both oil and water.

## ROSE LAKE

is a decoction of brazil wood. It is very fugacious under all circumstances, and is but little used and in oil only.

## RED CHROME

is a basic chromate of lead. It is of a scarlet color, very heavy and opaque in body. It is a good drier, but is very liable to blacken, and is used in oil only.

## MARS RED

is an artificial iron ochre. In color it is between light and Indian red, and is very permanent. It is used in oil only, and should not be mixed with colors affected by iron.

## LIGHT RED

is a calcined yellow ochre. In color it is an orange russet, used very much for flesh tints. It is very permanent, but should not be compounded with those colors affected by iron. It is an invaluable and very useful color, used both as an oil and water color. It has the general good properties of ochres and dries well.

## FLESH OCHRE

is a German variety of light red, somewhat more orange in tone. In other respects it is the same, and is used in oil only.

## BRUN ROUGE

is a French variety of light red. It is very rich and deep in color, and used in oil only. Otherwise it possesses the same properties as light red.

## BURNT ROMAN OCHRE

is, as its name applies, a burnt or calcined Roman ochre. It is moderately bright, of good depth and transparency of color. Is used as an oil color only and is very permanent.

## VENETIAN RED

is prepared by calcining proto-sulphate of iron. It is redder and deeper in color than light red, and like it should not be compounded with colors affected by iron. It is used both in oil and water, and is very permanent.

## INDIAN RED

is a peroxide of iron. It is a natural earth and is brought from Bengal. It is an anomalous red of a purple-russet shade, and highly valued for the pureness and laky tone of its tints. It has a tendency to deepen, but is nevertheless permanent. It is



opaque and a good drier, and is used both as an oil and water color.

#### DRAGON'S BLOOD

is a resinous substance, brought from the East Indies. In color it is a rather dull, warm and semi-transparent red. It is affected by light and impure air, and is used as a water color only.

#### GERANIUM LAKE

is an aniline color. It is a brilliant scarlet red, of no stability. It is used to some extent in oil, but fades under the action of a strong light in a short time.

#### ROSE GERANIUM

is the same as the preceding, but as a water color, and is somewhat more permanent.

#### ROSE CARTHAME

is also an aniline color, tending to blue, and therefore cooler than the preceding. In other respects it is the same, and finds use as a water color only.

#### ROSE DORE (water color)

is the most brilliant of the aniline reds; in fact, it is the brightest and most dazzling of all reds, and would be invaluable if any mode securing it from change could be devised.

### PURPLE COLORS

in general. Purple is a secondary color and is composed of red and blue. It is the coolest of the secondary colors and the nearest also to black or shade. It is a retiring color, which reflects but little light and declines rapidly in proportion to the distance it is viewed. Its contrasting color is yellow.

Of the purple colors there is none which is both permanent and saturated in color. Moderately good purples may be mixed with permanent reds and blues.

#### PURPLE Madder

is a very rich and deep carmine, prepared from the madder root. Though not a brilliant purple, its richness, transparency and permanence give it the preference to burnt carmine. It works well in both oil and water, and, with the exception of Mars

violet, is the only permanent purple. It combines well with all colors, and is altogether a most eligible color.

#### BURNT CARMINE

is the cochineal carmine partially charred. It is a reddish purple of great depth, but is not more permanent than ordinary carmine. It is used both in oil and water, and will not bear mixing with the lead colors.

#### PURPLE LAKE

is a crimson lake with a purple cast. In its general properties it resembles the same, but is more permanent, and is used in both oil and water.

#### BURNT LAKE

is a charred crimson lake which is rather fugacious and finds use in oil only.

#### INDIAN PURPLE

is prepared by precipitating cochineal extract with sulphate of copper. It is very deep toned but rather cold and subdued, and is very apt to blacken by exposure to light and air. It is used both in oil and water.

#### VIOLET CARMINE

is a decoction from the root of the "*Anchusa tinctoria*," and is a rich bluish purple of much brilliancy. It is used both in oil and water, but blackens when exposed to light and air.

#### MARS VIOLET

is an oxide of iron, resembling Indian red in body, opacity and general properties, but is somewhat darker in color. It dries well in oil and is very permanent.

#### MAUVE

is an aniline color of a very rich and brilliant purple of great intensity, but not much permanency. It fades in a strong light and is used both in oil and water.

#### LIGHT VIOLET

is a lighter variety of the preceding, with the same properties, and is used as a water color only.

#### MAGENTA

is an aniline color of a very weak kind. It fades very rapidly.

## BLUE COLORS

in general.—Blue is the third and last of the primary colors, and bears the same relation to shade that yellow bears to light. It is a retiring color, and is thrown back by all colors in greater or less degree. Its contrasting color is orange.

Blue is cold and quiet, and communicates this property, more or less, to all colors it is compounded with. It is pleasant to the eye, and where delicate, quiet tones are needed, and in the deep dark shades, blue is of use.

The number of blues is somewhat limited in comparison to the reds and yellows, but they are almost all of them good.

## GENUINE ULTRAMARINE

is prepared from the "lapis lazuli," a precious stone found principally in China and Persia. It is the most costly, most permanent and most celebrated of all colors.

Chemical analysis has shown that the coloring matter of lapis lazuli consists essentially of silica, alumina, sulphur and soda, and that the color is probably due to sodium sulphide and sodium thiosulphate.

Genuine ultramarine is prepared from the stone by a curious mechanical process, which, when well executed, separates the blue very perfectly from all extraneous matter, and yields, first a deep and rich product, then a paler one, and lastly a bluish grey, which is known as ultramarine ash.

In color genuine ultramarine is a most beautiful blue, ranging from the utmost depth of shadow to the highest brilliancy of light. It is transparent and eminently durable; it dries well and works easily in oil, and may be safely mixed with other colors. It does not wash well as a water color.

## ULTRAMARINE ASH

is a preparation of the refuse of "lapis lazuli," as described in the preceding. It is a blue grey of a warm tone, which washes in water much better than genuine ultramarine. It is permanent, and is used in oil also.

## BRILLIANT ULTRAMARINE

is an artificial ultramarine, and like them all is composed of silicate of alumina and silicate of soda, with sulphide of sodium.

In color it presents the nearest approach to the genuine ultramarine as well as in transparency, purity of tone and other general characteristics. It is permanent and works well in both oil and water.

#### FRENCH ULTRAMARINE

is a deep, rich artificial ultramarine, less vivid and transparent, but in other respects the same as the brilliant ultramarine. It is a generally useful color, both in oil and water.

#### FRENCH BLUE

is synonymous with French ultramarine.

#### NEW BLUE

is an artificial ultramarine holding an intermediate position between French blue and permanent blue. It is used both as an oil and water color.

#### PERMANENT BLUE

is an artificial ultramarine of a cobalt shade. In other respects it is like new blue, and is used in oil only.

#### COBALT

is obtained by calcining a mixture of alumina and basic phosphate of cobalt. It is a beautiful, delicate, pure blue, approaching in brilliancy the finest ultramarine, but is not as transparent. It dries well in oil, washes better than ultramarine in water and compounds easily with all other colors, and is permanent.

#### CERULEAN BLUE

is a compound of the oxides of tin and cobalt. It is a light pleasing blue of a greenish grey color. It possesses but little depth or richness, and a certain chalkiness detracts from its transparency and militates against its use in water. It is in oil and as a night color that cerulean blue becomes of service.

#### PRUSSIAN BLUE

is produced by the combination of prussic or hydrocyanic acid and iron. It is a deep and powerful blue, of vast body and considerable transparency. It possesses a soft velvety richness, and its deepest washes are so intense as to appear black. It dries and glazes well in oil, but is not a very permanent color, although it will last a long time under favorable circumstances. It fades under the action of strong light but regains its color in



the dark, and ultimately destroys chrome yellow when mixed with it.

#### CHINESE BLUE

is identical with the preceding.

#### ANTWERP BLUE

is a somewhat lighter colored Prussian blue, and having all the other qualities of that color but its extreme depth. It is less permanent, and is used both in oil and water.

#### LEITCH'S BLUE

is a mixture of cobalt and Prussian blue. When exposed to the light it gradually assumes the color of the paler but more permanent cobalt. It is only used in water.

#### INDIGO

is made from the leaves of several plants, but principally the "indigofera," found in India, Africa and America. Indigo does not exist as such in the living plant, but in the form of a glucoside called "indican," which is colorless. When the leaves are plucked and macerated in water a process of fermentation sets in and the indican is decomposed, forming indigo and glucose.

Indigo is not as bright as Prussian blue but is extremely powerful and transparent, and possesses great body and works well in oil and water. It is more permanent than Prussian blue, but in tint with white lead it is decidedly fugitive.

#### INTENSE BLUE

is a refined indigo. It works and washes admirably in water, and has the common properties of indigo but is much more durable, powerful, transparent and deep.

#### SMALT

is a double silicate of cobalt and potassium. In color it is a vivid and gorgeous violet blue, and is used as a water color only, but it soon fades.

#### BLUE VERDITER

is a blue oxide of copper. It is a beautiful, light blue color, which is but little affected by light; but time, damp and impure air turn it green and ultimately blacken it. This ensues even more rapidly in oil than in water.

## BREMEN BLUE

is synonymous to the preceding.

## AZURE BLUE

is an artificially prepared carbonate of copper. It is not permanent, and eventually turns black. It is used as a water color only.

## GREEN COLORS

in general.—Green is composed of the extreme primaries, yellow and blue. It occupies the middle station in the natural scale of colors and in relation to light and shade. It contrasts with red. In its tones, green is cool or warm, sedate or gay, either as it inclines to blue or yellow. Yet it is in its general effects cool, calm, temperate and refreshing; and having little power in reflecting light, is a retiring color and readily subdued by distance. As a color individually, green is eminently beautiful and agreeable.

The green colors in ordinary use are not very numerous; but these can be supplemented by mixtures of permanent blues and yellows.

## TERRE VERTE

is an ochre of a bluish-green color, not very bright and with a grey cast. It is very durable but seems to have a tendency to darken in time. It is semi-transparent and dries well in oil. It combines safely with all colors and is very useful as a glazing color. It is used both in oil and water.

## OLIVE GREEN

is a brighter variety of terre verte.

## CHROME GREEN

is a compound of chrome yellow with Prussian blue, usually made in three shades, viz., light, medium and dark. They are fine bright colors, but as chromate of lead has a chemical effect on Prussian blue, ultimately destroying it, the yare therefore unfit for artists' use. They are used in oil only.

## COBALT GREEN

is a mixture of the oxides of zinc and cobalt. It is a moderately bright green and is very permanent. It mixes well with all



colors, but is sadly deficient in body and power. It is used in oil only.

#### ZINC GREEN

is identical to cobalt green.

#### PERMANENT GREEN

is a compound of cobalt and chrome yellow. It is a pure though not very powerful green, and durable both in water and oil; in the latter it dries well. It is made in two shades—light and dark

#### EMERALD GREEN

is an aceto-arsenite of copper. It is a very vivid and bright green, being rather opaque and powerfully reflective of light, and is very permanent. It is not affected to any appreciable extent by damp or impure air, and works well in water but with difficulty in oil, in which it also dries badly.

#### MALACHITE GREEN

is a native carbonate of copper combined with a white earth, but it can also be artificially prepared with cobalt and Indian yellow. In both forms it withstands the action of light and air, but is blackened by damp and impure air. It is only used as an oil color, but it cannot be recommended as such.

#### VERDIGRIS

is a subacetate of copper. It is a bright green color, inclining to blue. It is the least permanent of the copper greens, soon fading as a water color or by the action of light, and becoming first white and eventually black by damp or foul air. In oil it is durable with respect to light and air, but moist and impure air changes its color. It dries rapidly, but is not on the whole a safe color to use.

#### OXIDE OF CHROMIUM

is an impure native chrome ochre, but is always prepared artificially for artists' use. It is a cold, sober sage green, deep toned, opaque, and although dull, is agreeable to the eye. Its tints with white are very delicate and pleasing. It is very dense, powerful and permanent, and mixes well with all colors. It is used both as an oil and water color, but does not work well in the latter.

## TRANSPARENT OXIDE OF CHROMIUM

is a compound of oxygen and chromium. It is a very pale, yellow-greyish green of some depth, but which is not very pure or clear. It is permanent and mixes well with all colors, and is used in oil only.

## VIRIDIAN

is a hydrated sesquioxide of chromium, containing a small quantity of water. It is a bluish green of rich transparency and great depth. It is very permanent and used both in oil and water, and mixes well with all colors.

## FRENCH VERONESE GREEN

is synonymous with the preceding.

## EMERAUDE GREEN

is identical with viridian.

## HOOKERS GREEN

is a mixture of Prussian blue and gamboge, which two colors, having the same degree of stability, are perfectly innocuous to each other. There are two shades made, light and dark, and they are used in water only. They are more durable and transparent than the chrome greens.

## PRUSSIAN GREEN

is like the preceding, a mixture of Prussian blue and gamboge, but with the Prussian blue predominating. It is a bluish green of the utmost depth and transparency, verging on black in its deepest washes. It is equally permanent to Hookers green, and used both as an oil and water color.

## BRONZE GREEN

is synonymous with Prussian green.

## SAP GREEN

is of vegetal origin, and is prepared from the juice of the berries of the "buckthorn," the green leaves of the "woad," etc. It is of a dark color, extremely transparent, and is a fine natural yellowish green. Though much employed as a water color it is a very imperfect color, disposed to attract the moisture of the atmosphere and to mildew. It has but little permanency, and is used in water only.

## VERONISE GREEN

is a compound of silica, oxide of iron, magnesia, potash and water. In color it is a bluish green, with a grey cast. It is semi-transparent, dries well in oil, and is useful for glazing. It is permanent and mixes well with all other colors. Strong light and impure air have no effect upon it, though it has a tendency to darken in time.

## ULTRAMARINE GREEN

is an unfinished artificial ultramarine blue. Artificial ultramarine blue is made by calcining ultramarine green at a very low temperature, and slowly adding powdered sulphur until the proper shade of blue is obtained. Ultramarine green is of a rich bluish green color, very transparent and equally permanent to ultramarine blue. It is used as an oil color only.

## GREEN LAKE

is a mixture of Prussian blue and yellow lake. It is fairly permanent and used both in oil and water.

## OLIVE LAKE

is a mixture of a deep olive color. It is a rich, beautiful color, but is not very permanent. It is used both as an oil and water color.

## ZINOBER GREEN

is a mixture of chrome yellow and Prussian blue, and is made in three shades, viz., light, medium or dark, which latter is very deep and bluish. They are identical with the chrome greens except in tone, and the same applies to both in regard to their permanency. They are used both in oil and water.

## BROWN COLORS

in general.—Brown in its widest conception has been used to comprehend every denomination of dark, broken color, and in a more limited sense is the rather indefinite appellation of a very extensive class of colors of warm or tawny shade. There are browns of every shade except blue, as such a predominance of a cold color would immediately carry the compound into grey.

Brown properly denotes a warm, broken color, of which yellow is the principal constituent. It is a sober, sedate color, grave and solemn but not dismal, and contributes to the ex-

pression of strength, stability and solidity and in the minor degree to the serious and sad.

Brown colors are very numerous, and are almost without exception characterized by great durability.

#### RAW UMBER

is a natural ochre abounding with oxide of manganese, which comes principally from Cyprus and is called Turkey umber. It is of a fine brownish-citrine color, semi-opaque, with all the properties of a good ochre, is perfectly permanent in both oil and water, and is one of the best drying colors. It mixes well with all colors, and has a tendency to darken with age.

#### BURNT UMBER

is prepared by calcining raw umber. It is much deeper and richer than the latter. It works and washes well in water, dries rapidly in oil, and is perfectly durable in either. It mixes well with all colors.

#### VANDYKE BROWN

is a species of peat or bog earth, of a fine, deep, semi-transparent brown color. It dries tardily in oil, but is durable in both oil and water.

#### CASSEL EARTH

is an ochrous color similar to the preceding. It is used as an oil color only.

#### COLOGNE EARTH

is prepared by calcining Vandyke brown. It is similar in its general properties to the latter, but much deeper in color, and is used both in oil and water.

#### CALEDONIAN BROWN

is a permanent native pigment, only used in oil painting. It is a magnificent orange, russet-brown, of considerable transparency, and is marked by great richness and depth.

#### CAPPAH BROWN

is a species of bog earth, containing peroxide of manganese, which is found at Cappah, near Cork. It varies considerably in tone, but always possesses much richness and transparency. It is used in oil only, and dries rapidly.

## VERONA BROWN

is obtained by calcining Veronese green. It is a very serviceable citrine-brown and is very permanent. Is used as an oil color only, and compounds well with all other colors.

## BROWN PINK

is generally prepared from Avignon berries (*Rhamnus infectorius* or *Rhamnus amygdalinus*), but is sometimes made also from quercitron bark. The latter is fairly permanent, while the kind produced from the berries is fugacious. It is used both in oil and water, drying badly in the former, however. It is of a rich transparent color, rarely of a true brown, but in general of an orange broken by green, and is of great depth and works well.

## BURNT TERRE VERTE

is, as the name implies, a calcined terre verte. In color it is of a deep, sometimes reddish, sometimes greenish-brown color, which is very useful but of not much body, while it possesses much warmth and transparency. It is used in oil only, but dries slowly and is permanent.

## BONE BROWN

is obtained by charring ivory chips or dust until it becomes of a brown color. It is a very deep, rich brown, which although much esteemed is not very eligible. It is not very permanent and is a bad drier. It is used in oil only.

## PRUSSIAN BROWN

is prepared by calcining Prussian blue. It is an orange-brown of the nature and properties of burnt sienna, but not so rich nor powerful. It is only used in oil and mixes well with all colors.

## ROMAN BROWN

is a mixture of Cologne earth and lake. It is a very rich, deep, semi-transparent red-brown. It is fairly permanent and is used only in oil.

## BROWN MADDER

is prepared from the madder root. It is of a pure, rich and transparent russet brown, of great depth and intensity. It is very permanent, neither light nor impure air affecting it, and it compounds well with all colors. It works very pleasantly in



both oil and water, and dries well in the former. It is a color which cannot be too strongly recommended to artists.

#### RUBENS MADDER

is similar to the preceding but more reddish in tone. It is very pure, transparent and permanent, and is used as an oil color only.

#### MARS BROWN

is either a natural or an artificial ochre, containing iron, or iron and manganese. In color it is similar to raw umber but more orange in tone. It is of much richness and absolute permanence, and is used in oil only.

#### ASPHALTUM

is a variety of pitch which rises to the surface of the Dead Sea, concretes by the action of the sun and atmosphere, and floating to the shore is gathered. It is also artificially prepared by distilling resinous and bituminous matter obtained in the manufacture of coal gas. In color it is of a rich brown, perfectly transparent and of powerful body. It has a strong tendency to darken, and changes in temperature and atmosphere cause it to contract and crack. It cannot, therefore, be recommended to the artist as an oil color. In water it is fairly permanent.

#### BITUMEN

is asphaltum ground in drying oil, as asphaltum is a very slow drier.

#### MUMMY

is a bituminous substance combined with animal remains, brought from the catacombs of Egypt, where liquid bitumen was used three thousand years ago for embalming, in which capacity it combined by a slow process or chemical change, during so many ages, with substances which give it a more solid and lasting texture than simple asphaltum. It resembles asphaltum in its general properties and is often substituted for it as being less liable to contract or crack. It cannot, however, be well recommended, and is used in oil only.

#### BISTRE

is a preparation from the soot of wood fires, extracted by a watery solution. It is a powerful citrine brown, with much clearness. It washes well in water, in which it is much used,

though it is also employed in oil. It has, however, a tendency to attract moisture from the atmosphere, and is therefore liable to cause mildew. In oil it is a slow-drying color. It is very permanent.

#### SEPIA

is the product of the ink bag of the cuttle fish, "*Sepia officinalis*." It is a very powerful, dusky brown, of fine texture, very clear and transparent and permanent. It works admirably in water and combines cordially with other colors. It is but little used as an oil color, as it dries very slowly.

#### WARM SEPIA

is like the preceding, but warmed by admixture with browns of a red tone. It is used in water only.

#### ROMAN SEPIA

is a similar preparation, but with a yellow tendency.

### GREY COLORS

in general.—Greys are the natural correlatives of the browns. Grey is the color of space and has the property of diffusing breadth in a picture, while at the same time it furnishes good connecting tints for harmonizing the general coloring. The greys are therefore among the most essential colors, which, however, must not be suffered injudiciously to predominate in cases where the subject or sentiment does not require it. Greys are sober, modest colors contributing to the expression of gloom, sadness and fear, bordering in these respects upon the powers of black. There is hardly any necessity for grey colors, as they are so readily mixed, and there are therefore but few, and these are water colors.

#### CHARCOAL GREY

is, as its name infers, a ground charcoal. It is a cool grey and has the effect of a charcoal drawing in water color. In its deepest shades it is black. It washes with ease and is very permanent.

#### NEUTRAL TINT

is a compound shadow color of a cool character. It is permanent and works well in water.

## PAYNE'S GREY

resembles the preceding, but differs from it in being more lilac in tone. It is a very useful color in water. Both neutral tint and Payne's grey are to be had in oil and are used to some extent. They, however, soon lose their character in the same, and cannot therefore be recommended.

## BLACK COLORS

in general. — Black is the absence of light — the opposite extreme of white. To be perfect it must be neutral to colors individually, and absolutely transparent or destitute of reflection in regard to light. Its use in painting being to represent shade or depth, of which it is the element in a painting and in colors, as white is of light. All other colors are by admixture with black lowered in tone. Pure black is seldom used, and a painting which in its general tone is rather dark, can be lightened by a judicious use of a little black. To concentrate depth, white and black are often placed beside one another.

There are but few black colors, which are all permanent, both in oil and water, and are all derived from carbonaceous substances.

## IVORY BLACK

is obtained by charring ivory to blackness by strong heat in closed retorts. It is the richest and most transparent of all blacks, and is perfectly permanent and eligible, both in oil and water. It is a full, silky black, which has a tendency to brown in its pale washes.

## BONE BLACK

is similar to the preceding, but bone is substituted for ivory and it is more brownish in color. It is used in oil only.

## BLUE BLACK

is prepared by burning grapevine twigs to charcoal. It is a bluish black of weak body, very clear and velvety. It has a preservative influence on white lead, and is very permanent. It is used both in oil and water.

## LAMP BLACK

is a smoke black, being the soot of resinous woods, obtained in the manufacture of tar and turpentine. It is a pure carbona-

cons substance of a fine texture, intensely black and perfectly permanent. It is not so intense nor transparent as ivory black, but less brown in its pale washes. It has a very strong body that covers readily every underlay of color, and it dries slowly in oil.

## CORK BLACK

is a soft black obtained by charring cork. It is a blue but not velvety black, and should not be used where intensity is required. It is an oil color only.

## PAPER BLACK

is a greyish blue-black of fine tone, obtained by charring linen paper. It is very similar to blue black and is used in oil only.

## BLACK LEAD

is a species of plumbago or graphite, and contains traces of iron, silica and alumina. It has a pure greyish tone and dries rapidly. It is not much used, and in oil only.

## MIXED TINTS.

The following table of mixed tints has been very carefully prepared. Variations may be given according to the quantity of each color used. Those printed in *italics* are to be but sparingly used. The names given to these tints are such as are familiar to everybody. The mixtures apply about equally well to water as to oil.

1 Tea Rose Yellow . . .	White, Lemon Chrome.
2 Ivory Yellow . . .	White, Lemon Chrome, <i>Rare Sienna</i> .
3 Cherry Yellow . . .	White, Chrome Yellow.
4 Straw Yellow . . .	White, Chrome Yellow, <i>Yellow Ochre</i> .
5 Reed Yellow . . .	White, Chrome Yellow, <i>Viridian</i> .
6 Canary Yellow . . .	White, Lemon Yellow.
7 Jonquil Yellow . . .	White, Lemon Yellow, <i>Trans. Gold Ochre</i> .
8 Lemon Yellow . . .	White, Cadmium, pale.
9 Citron Yellow . . .	White, Citron Yellow.
10 Egg Yellow . . .	White, Cadmium Yellow, <i>Indian Yellow</i> .
11 Holland Yellow . . .	White, Yellow Ochre, <i>Naples Yellow</i> .
12 Apricot Yellow . . .	White, Yellow Ochre.
13 Wheat Yellow . . .	White, Yellow Ochre, <i>Red Naples Yellow</i> .
14 Corn Yellow . . .	White, Trans. Gold Ochre, <i>Indian Yellow</i> .
15 Old Gold . . .	White, Trans. Gold Ochre, <i>Gamboge</i> .
16 Cream . . .	White, Naples Yellow.

17 Buff . . . . .	White, Naples Yellow, <i>Yellow Ochre</i> .
18 Terra Cotta Yellow . . . . .	White, Naples Yellow, <i>Vermilion</i> .
19 Corn Straw Yellow . . . . .	White, Cadmium Yellow.
20 Orange . . . . .	White, Cadmium Orange.
21 Chamois Yellow . . . . .	White, Kings Yellow, <i>Indian Yellow</i> .
22 Palm Fan Yellow . . . . .	White, Kings Yellow, <i>Raw Umber</i> .
23 Rattan Yellow . . . . .	White, Raw Umber, Trans. Gold Ochre.
24 Bamboo Yellow . . . . .	White, Italian Pink, <i>Raw Umber</i> .
25 Roan Yellow . . . . .	White, Italian Pink, Yellow Ochre, <i>Light Red</i> .
26 Salmon . . . . .	White, Vermilion, Indian Yellow.
27 Nasturtion Orange . . . . .	White, Fr. Vermilion, <i>Gamboge</i> .
28 Sunset Orange . . . . .	White, Fr. Vermilion, <i>Cadmium Orange</i> .
29 Flamingo . . . . .	White, Cadmium Orange, <i>Geranium Lake</i> .
30 Pompeian Orange . . . . .	White, Fr. Vermilion, <i>Persian Orange</i> .
31 Pale Flesh . . . . .	White, Light Red.
32 Light Flesh . . . . .	White, Light Red, Yellow Ochre.
33 Dark Flesh . . . . .	White, Brun Ronge, <i>Terre Verte</i> .
34 Peach . . . . .	White, Brun Rouge, Indian Yellow.
35 Hazelnut . . . . .	White, Brun Rouge, <i>Raw Umber</i> .
36 Japan Rose . . . . .	White, Madder Lake, <i>Gamboge</i> .
37 Pink . . . . .	White, Madder Lake.
38 Rose Pompadour . . . . .	White, Crimson Lake.
39 Wild Rose . . . . .	White, Crimson Lake, Madder Lake.
40 Rose . . . . .	White, Madder Lake, Geranium Lake.
41 Geranium Pink . . . . .	White, Geranium Lake.
42 Claret . . . . .	White, Carmine.
43 Pompeian Red . . . . .	White, Carmine, <i>Vermilion</i> .
44 Rose Wood . . . . .	White, Carmine, Brown Madder.
45 Deep Cherry . . . . .	Carmine, Brown Madder.
46 Geranium Rose . . . . .	Geranium Lake, Madder Lake.
47 Strawberry . . . . .	Geranium Lake, Crimson Lake.
48 Blood . . . . .	Geranium Lake, Madder Lake, Carmine.
49 Jack Rose . . . . .	Geranium Lake, Bt. Carmine.
50 Ruby . . . . .	Carmine, Geranium Lake.
51 Grey Lilac . . . . .	White, Purple Lake, <i>Ivory Black</i> .
52 Red Lilac . . . . .	White, Purple Lake, <i>Geranium Lake</i> .
53 Amethyst . . . . .	White, Purple Lake, <i>Crimson Lake</i> .
54 Amaranth . . . . .	White, Purple Lake, Madder Lake.
55 Plum . . . . .	White, Purple Lake, <i>Mauve</i> .
56 Light Azure Blue . . . . .	White, Antwerp Blue.
57 Azure Blue . . . . .	White, Antwerp Blue, <i>Permanent Blue</i> .
58 Sky Blue . . . . .	White, Prussian Blue.
59 Faded Blue . . . . .	White, Prussian Blue, <i>Indigo</i> .
60 Italian Sky Blue . . . . .	White, Cobalt, <i>Viridian</i> .
61 Light Sky Blue . . . . .	White, New Blue.
62 Pearl Blue . . . . .	White, New Blue, <i>Blue Black</i> .
63 Smoke Blue . . . . .	White, New Blue, <i>Blue Black</i> , <i>Indigo</i> .



64 Magnonette . . . . .	White, <i>Fr. Ultramarine, Crimson Lake.</i>
65 Steel Blue . . . . .	White, <i>Fr. Ultramarine, Indigo.</i>
66 Cornflower Blue . . . . .	White, <i>Fr. Ultramarine.</i>
67 Princess Blue . . . . .	White, <i>Fr. Ultramarine, Cobalt.</i>
68 Royal Blue . . . . .	White, <i>Fr. Ultramarine, Prussian Blue.</i>
69 Old Blue . . . . .	<i>Fr. Ultramarine, Prussian Blue, Ivory Black.</i>
70 Navy Blue . . . . .	<i>Prussian Blue, Fr. Ultramarine.</i>
71 Light Cerulean Blue . . . . .	White, <i>Cerulean Blue.</i>
72 Cerulean Blue . . . . .	White, <i>Cerulean Blue.</i>
73 Cold Blue . . . . .	White, <i>Indigo, Lamp Black.</i>
74 Turquoise Blue . . . . .	White, <i>Cerulean Blue, Viridian.</i>
75 Bottle Green Blue . . . . .	<i>Cerulean Blue, Viridian, Green Lake.</i>
76 Pale Lavender . . . . .	White, <i>Cobalt.</i>
77 Lavender . . . . .	White, <i>Cobalt, Purple Lake.</i>
78 Wisteria . . . . .	White, <i>Cobalt Blue, Madder Lake.</i>
79 Forget Me-Not . . . . .	White, <i>Cobalt Blue.</i>
80 Victoria Blue . . . . .	White, <i>Cobalt Blue, Purple Lake.</i>
81 Opal . . . . .	White, <i>Viridian.</i>
82 Lt. Turquoise Green . . . . .	White, <i>Viridian, Cobalt Blue.</i>
83 Turquoise Green . . . . .	White, <i>Viridian, Cerulean Blue.</i>
84 Water Green . . . . .	White, <i>Emerald Green, Viridian.</i>
85 Light Blue Green . . . . .	White, <i>Emerald Green, Viridian, Prussian Blue.</i>
86 Pale Green . . . . .	White, <i>Chrome Green, Emerald Green.</i>
87 Duck Egg Green . . . . .	White, <i>Chrome Green.</i>
88 Grey Green . . . . .	White, <i>Chrome Green, Green Lake.</i>
89 Myrtle Green . . . . .	White, <i>Chrome Green, Ivory Black.</i>
90 Blue Green . . . . .	<i>Emerald Green, Prussian Blue.</i>
91 Pea Green . . . . .	White, <i>Green Lake.</i>
92 Sunlight Green . . . . .	White, <i>Green Lake, Gamboge.</i>
93 Foliage Green . . . . .	White, <i>Green Lake, Indian Yellow.</i>
94 Grass Green . . . . .	White, <i>Viridian.</i>
95 Shadow Green . . . . .	<i>Chrome Green, Viridian.</i>
96 Light Apple Green . . . . .	White, <i>Emerald Green, Green Lake.</i>
97 Pistache Green . . . . .	White, <i>Emerald Green.</i>
98 Parakeet Green . . . . .	<i>Emerald Green, White, Viridian.</i>
99 Apple Green . . . . .	<i>Emerald Green, White Green Lake, Chrome Green.</i>
100 Emerald Green . . . . .	<i>Emerald Green, Emerald Green.</i>
101 Nile Green . . . . .	White, <i>Emerald Green.</i>
102 Distance Green . . . . .	White, <i>Chrome Green, Gamboge.</i>
103 Copper Green . . . . .	White, <i>Chrome Green, Green Lake, Emerald Green.</i>
104 Maple Green . . . . .	White, <i>Chrome Green, Lamp Black.</i>
105 Bottle Green . . . . .	White, <i>Chrome Green, Cobalt Blue.</i>
106 Lichen Green . . . . .	White, <i>Yellow Ochre, Chrome Green.</i>
107 Duck Green . . . . .	White, <i>Zincober Green, Yellow Ochre.</i>
108 Hunters Green . . . . .	White, <i>Zincober Green, Yellow Ochre, Cobalt.</i>

109 Lobster Green . . .	Zinober Green, <i>Yellow Ochre, Cobalt.</i>
110 Russian Green . . .	Zinober Green, Prussian Blue.
111 Light Grey Green . .	White Ultra. Green, <i>Gamboge.</i>
112 Light Bremen Blue Green . . . . .	White, Ultra. Green.
113 Bremen Blue Green.	White, Ultra. Green, <i>Cobalt.</i>
114 Tea Green . . . . .	White, Zinober Green, <i>Trans. Gold Ochre.</i>
115 Sage Green . . . . .	White, Zinober Green, <i>Trans. Gold Ochre,</i> <i>Ivory Black.</i>
116 Pale Lilae . . . . .	White, Purple Lake.
117 Grey Lilae . . . . .	White, Purple Lake, <i>Lamp Black</i>
118 Light Lavender . . .	White, <i>Purple Lake, Mauve.</i>
119 Deep Lavender . . .	White, <i>Madder Lake, Cobalt.</i>
120 Blue Lavender . . .	White, <i>Cobalt, Madder Lake.</i>
121 Pansy Violet . . . .	White, <i>Mauve.</i>
122 Iris Violet . . . . .	White, <i>Mauve, Bt. Carmine.</i>
123 Violet . . . . .	<i>Mauve.</i>
124 Pansy Purple . . . .	<i>Mauve. Fr. Ultramarine.</i>
125 Royal Purple . . . .	<i>Mauve, Cobalt.</i>
126 Cantaloupe . . . . .	White, <i>Olive Green.</i>
127 Light Olive Green . .	White, <i>Olive Lake, Terre Verte.</i>
128 Moss Green . . . . .	<i>Olive Lake, Terre Verte.</i>
129 Olive Green . . . . .	<i>Olive Lake, Terre Verte, Bt. Terre Verte.</i>
130 Sap Green . . . . .	<i>Olive Lake, Green Lake.</i>
131 Light Grey Brown . .	White, <i>Raw Sienna.</i>
132 Portland Stone . . .	White, <i>Trans. Gold Ochre, Raw Umber.</i>
133 Ecrú . . . . .	<i>Trans. Gold Ochre, Raw Umber.</i>
134 Drab Brown . . . . .	White, <i>Burnt Umber.</i>
135 Sparrow Brown . . .	White, <i>Burnt Umber, Burnt Sienna.</i>
136 Fire Brick . . . . .	White, <i>Yellow Ochre, Raw Sienna.</i>
137 Melon . . . . .	White, <i>Yellow Ochre, Burnt Sienna.</i>
138 Leather Brown . . .	<i>Yellow Ochre, Burnt Sienna, Raw Umber.</i>
139 Tan Brown . . . . .	<i>Raw Sienna, Burnt Umber.</i>
140 Auburn . . . . .	<i>Burnt Sienna, Crimson Lake.</i>
141 Peach Blossom . . .	White, <i>Brun Rouge, Madder Lake.</i>
142 Cinnamon . . . . .	<i>Light Red, Trans. Gold Ochre, White.</i>
143 Indian Brown . . . .	<i>Light Red, Indian Red.</i>
144 Red Brown . . . . .	<i>Indian Red, Burnt Sienna</i>
145 Bark Brown . . . . .	<i>Burnt Umber, Vandyke Brown</i>
146 Terra Cotta Red . .	White, <i>Light Red, Raw Sienna.</i>
147 Moose Brown . . . .	<i>Burnt Sienna, Brown Madder.</i>
148 Walnut . . . . .	<i>Burnt Sienna, Indian Red, Ivory Black.</i>
149 Chocolate . . . . .	<i>Vandyke Brown, Burnt Sienna, Indian Red.</i>
150 Snuff . . . . .	<i>Vandyke Brown, Ivory Black.</i>
151 Silver Grey . . . . .	White, <i>Ivory Black.</i>
152 Pearl Grey . . . . .	White, <i>Ivory Black, Prussian Blue.</i>
153 Dove Grey . . . . .	White, <i>Lamp Black.</i>

154	Lavender Grey . . .	White, <i>Purple Lake, Lamp Black.</i>
155	Nile Green Grey . . .	White, <i>Emerald Green, Lamp Black.</i>
156	Light Sky Grey . . .	White, <i>Prussian Blue, Lamp Black.</i>
157	Sky Grey . . . . .	White, <i>Cobalt, Lamp Black.</i>
158	Blue Grey . . . . .	White, <i>Indigo, Lamp Black.</i>
159	Violet Grey . . . . .	White, <i>Cobalt, Blue Black.</i>
160	Lilac Grey . . . . .	White, <i>Cobalt, Purple Lake, Lamp Black.</i>
161	Mouse Drab . . . . .	White, <i>Raw Umber, Lamp Black.</i>
162	French Drab . . . . .	White, <i>Raw Umber, Vandyke Brown.</i>
163	Brown Drab . . . . .	White, <i>Raw Umber, Indian Red.</i>
164	Green Brown Drab . . .	White, <i>Raw Umber, Yellow Ochre, Lamp Black.</i>
165	Mouse Grey . . . . .	White, <i>Ivory Black.</i>
166	Light Grey . . . . .	White, <i>Green Lake, Ivory Black.</i>
167	Drab . . . . .	White, <i>Ivory Black, Trans. Gold Ochre.</i>
168	Green Grey . . . . .	White, <i>Ivory Black, Yellow Ochre, Emerald Green.</i>
169	Slate . . . . .	White, <i>Blue Black.</i>
170	Lead Grey . . . . .	White, <i>Blue Black, Gamboge.</i>
171	Dull Green Grey . . .	White, <i>Yellow Ochre, Lamp Black.</i>
172	Clay Grey . . . . .	White, <i>Yellow Ochre, Blue Black.</i>
173	Stone Grey . . . . .	White, <i>Yellow Ochre, Blue Black, Raw Umber.</i>
174	Cliff Grey . . . . .	White, <i>Yellow Ochre, Blue Black, Burnt Umber.</i>
175	Sage Grey . . . . .	White, <i>Yellow Ochre, Blue Black, Prussian Blue.</i>



# SPECIMENS

— OF —

## MIXED TINTS.

1. Tea Rose Yellow.	2. Ivory Yellow.	3. Cherry Yellow.	4. Straw Yellow.	5. Reed Yellow.
6. Curry Yellow.	7. Jonquil Yellow.	8. Lemon Yellow.	9. Citron Yellow.	10. Egg Yellow.
11. Holland Yellow.	12. Apricot Yellow.	13. Wheat Yellow.	14. Corn Yellow.	15. Old Gold.
16. Cream	17. Buff.	18. Terra Cotta Yellow.	19. Corn Straw Yellow.	20. Orange.
21. Chamotte Yellow.	22. Palm Fan Yellow.	23. Rattan Yellow.	24. Bamboo Yellow.	25. Bone Yellow.





				
26. Salmon.	27. Nasturtion Orange.	28. Sunset Orange.	29. Flamingo.	30. Pompeian Orange.
				
31. Pale Flesh.	32. Light Flesh.	33. Dark Flesh.	34. Peach.	35. Hazelnut.
				
36. Japan Rose.	37. Pink.	38. Rose Pompadour.	39. Wild Rose.	40. Rose.
				
41. Geranium Pink.	42. Claret.	43. Pompeian Red.	44. Rosewood.	45. Deep Cherry.
				
46. Geranium Rose.	47. Strawberry.	48. Blood.	49. Jack Rose.	50. Ruby.
				
51. Grey Lilac.	52. Red Lilac.	53. Amethyst.	54. Amaranth.	55. Plum.






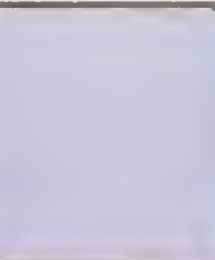
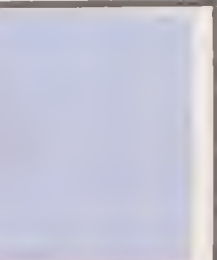
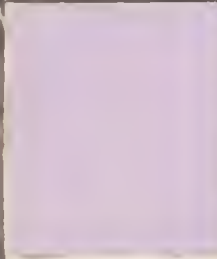



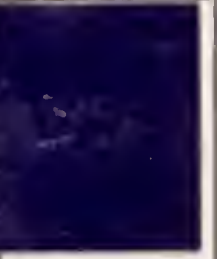
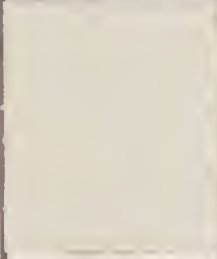




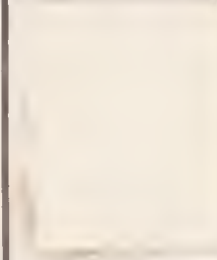




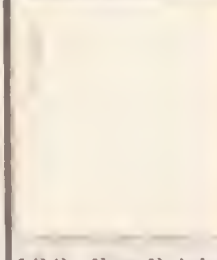






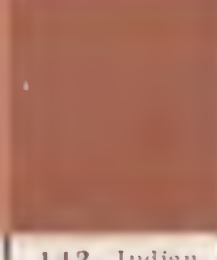


56. Light Azure Blue.	57. Azure Blue.	58. Sky Blue.	59. Paled Blue.	60. Italian Sky Blue.
61. Light Sky Blue.	62. Pearl Blue.	63. Smoke Blue.	64. Mignonette	65. Steel Blue.
66. Cornflower Blue.	67. Princess Blue.	68. Royal Blue.	69. Old Blue.	70. Navy Blue.
71. Lt. Cerulean Blue.	72. Cerulean Blue.	73. Cold Blue.	74. Turquoise Blue.	75. Bottle Green Blue.
76. Pale Lavender.	77. Lavender.	78. Wisteria.	79. Forget-me-not.	80. Victoria Blue.
81. Opal.	82. Light Turquoise Green.	83. Turquoise Green.	84. Water Green.	85. Light Blue Green.





86. Pale Green	87. Duck Egg Green.	88. Grey Green.	89. Myrtle Green.	90. Blue Green.
91. Pea Green.	92. Sunlight Green.	93. Foliage Green.	94. Grass Green.	95. Shadow Green.
96. Light Apple Green.	97. Pistache Green.	98. Paraquet Green.	99. Apple Green.	100. Emerald Green.
101. Nile Green.	102. Distance Green.	103. Copper Green.	104. Maple Green.	105. Bottle Green.
106. Lichen Green	107. Duck Green.	108. Hunter's Green.	109. Lobster Green.	110. Russian Green.
111. Light Grey Green.	112. Lt Bremen Blue Green.	113. Bremen Blue Green.	114. Teal Green	115. Sage Green.



				
116. Pale Lilac.	117. Grey Lilac.	118. Light Lavender.	119. Deep Lavender.	120. Blue Lavender.
				
121. Pansy Violet.	122. Iris Violet.	123. Violet.	124. Pansy Purple.	125. Royal Purple.
				
126. Cantaloupe.	127. Light Olive Green.	128. Moss Green.	129. Olive Green.	130. Sap Green.
				
131. Light Grey Brown.	132. Portland Stone.	133. Ecru.	134. Drab Brown.	135. Sparrow Brown.
				
136. Fire Brick.	137. Melon.	138. Leather Brown.	139. Tan Brown.	140. Auburn.
				
141. Peach Blossom.	142. Cinnamon.	143. Indian Brown.	144. Red Brown.	145. Bark Brown.



				
146. Terra Cotta Red.	147. Moose Brown.	148. Walnut.	149. Chocolate.	150. Snuff.
				
151. Silver Grey.	152. Pearl Grey.	153. Dove Grey.	154. Lavender Grey.	155. Nile Green Grey.
				
156. Light Sky Grey.	157. Sky Grey.	158. Blue Grey.	159. Violet Grey.	160. Lilac Grey.
				
161. Mouse Drab.	162. French Drab.	163. Brown Drab.	164. Green Brown Drab.	165. Mouse Grey.
				
166. Light Grey.	167. Drab.	168. Green Grey.	169. Slate.	170. Lead Grey.
				
171. Dull Green Grey.	172. Clay Grey.	173. Stone Grey.	174. Cliff Grey.	175. Sage Grey.





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Warm Sepia .. . . . .	37
Yellow Lake .. . . . .	17
Yellow Madder .. . . . .	17
Yellow Ochre .. . . . .	16
Yellow Ultramarine .. . . . .	16
Zinc Green .. . . . .	31
Zinc White .. . . . .	13
Zinc Yellow .. . . . .	15
Zinober Green .. . . . .	33

## Finely Prepared Artists' Oil Colors.

IN COLLAPSIBLE TUBES.

When ordering, the number of the color need only be mentioned.

(IN FOUR INCH TUBES.)

- |                            |                              |
|----------------------------|------------------------------|
| 1. Antwerp Blue.           | 39. Ivory Black.             |
| 2. Asphaltum.              | 40. King's Yellow.           |
| 3. Bistre.                 | 41. Lamp Black.              |
| 4. Bitumen.                | 42. Light Red.               |
| 5. Blue Black.             | 43. Megilp.                  |
| 6. Bone Black.             | 44. Mummy.                   |
| 7. Bone Brown.             | 45. Naples Yellow, light.    |
| 8. Brilliant Yellow.       | 46. Naples Yellow, medium.   |
| 9. Brown Ochre.            | 47. Naples Yellow, deep.     |
| 10. Brown Pink.            | 48. New Blue.                |
| 11. Brun Ronge.            | 49. Olive Green.             |
| 12. Burnt Roman Ochre.     | 50. Paper Black.             |
| 13. Burnt Sienna.          | 51. Prussian Blue.           |
| 14. Burnt Terre Verte.     | 52. Prussian Brown.          |
| 15. Burnt Umber.           | 53. Prussian Green.          |
| 16. Caledonian Brown       | 54. Raw Sienna.              |
| 17. Cappah Brown.          | 55. Raw Umber.               |
| 18. Cassel Earth.          | 56. Red Naples Yellow.       |
| 19. Chinese Blue.          | 57. Roman Brown.             |
| 20. Chrome Green, light.   | 58. Roman Ochre.             |
| 21. Chrome Green, medium.  | 59. Silver White.            |
| 22. Chrome Green, deep.    | 60. Sugar of Lead.           |
| 23. Chrome Yellow, light.  | 61. Terre Verte.             |
| 24. Chrome Yellow, medium. | 62. Transparent Gold Ochre.  |
| 25. Chrome Yellow, deep.   | 63. Ultramarine Green, light |
| 26. Chrome Orange.         | 64. Ultramarine Green, deep  |
| 27. Chrome Orange, deep.   | 65. Vandyke Brown.           |
| 28. Cologne Earth.         | 66. Venetian Red.            |
| 29. Copal Megilp.          | 67. Verona Brown.            |
| 30. Cork Black.            | 68. Yellow Lake.             |
| 31. Crennitz White.        | 69. Yellow Ochre.            |
| 32. Emerald Green.         | 70. Yellow Ultramarine.      |
| 33. Flake White.           | 71. Zinc White.              |
| 34. Flesh Ochre.           | 72. Zinc Yellow.             |
| 35. Green Naples Yellow.   | 73. Zinober Green, light.    |
| 36. Indian Red.            | 74. Zinober Green, medium    |
| 37. Indigo.                | 75. Zinober Green, deep.     |
| 38. Italian Pink.          |                              |

(IN TWO AND A HALF INCH TUBES.)

- |                           |                             |
|---------------------------|-----------------------------|
| 76. Carmine Lake.         | 83. Permanent Blue.         |
| 77. Crimson Lake.         | 84. Permanent Green, No. 1. |
| 78. Gamboge.              | 85. Permanent Green, No. 2. |
| 79. Geranium Lake, No. 2. | 86. Purple Lake.            |
| 80. Indian Lake.          | 87. Scarlet Lake.           |
| 81. Mauve.                | 88. Verdigris.              |
| 82. Olive Lake.           | 89. Veronese Green.         |

6 CENTS EACH.

# Henry Leidel's

## Finely Prepared Artists' Oil Colors

*Continued.*

### IN COLLAPSIBLE TUBES.

(IN DOUBLE TUBES.)

- 31D. Cremnitz White.
- 33D. Flake White.
- 59D. Silver White.

**12 CENTS EACH.**

(IN HALF-POUND TUBES.)

- 31Q. Cremnitz White.
- 33Q. Flake White.
- 59Q. Silver White.

**24 CENTS EACH.**

(ALL THE FOLLOWING COLORS ARE IN TWO AND A HALF INCH TUBES.)

- 90. Blue Verditer.
- 91. Brown Madder.
- 92. Capucine Lake.
- 93. Carmine No. 2.
- 94. Cerulean Blue.
- 95. Chinese Vermilion.
- 96. Citron Yellow.

- 97. French Vermilion.
- 98. Geranium Lake (extra).
- 99. Green Lake.
- 100. Japan Yellow.
- 100 $\frac{1}{2}$ . Persian Orange.
- 101. Sepia.
- 102. Vermilion.

**12 CENTS EACH.**

- 103. Cobalt Blue.
- 104. Emeraude Green.
- 105. Extract of Vermilion.
- 106. French Ultramarine.
- 107. Indian Yellow.
- 108. Lemon Yellow.
- 109. Lemon Yellow, pale.
- 110. Madder Lake.
- 111. Malachite Green.
- 112. Mars Brown.
- 113. Mars Red.
- 114. Mars Violet.

- 115. Mars Yellow.
- 116. Orange Vermilion.
- 117. Oxide of Chromium.
- 118. Oxide of Chromium, Trans.
- 119. Pink Madder.
- 120. Rembrandt's Madder.
- 121. Rose Doré.
- 122. Rose Madder.
- 123. Rubens' Madder.
- 124. Scarlet Vermilion.
- 125. Strontian Yellow.
- 126. Viridian.

**20 CENTS EACH.**

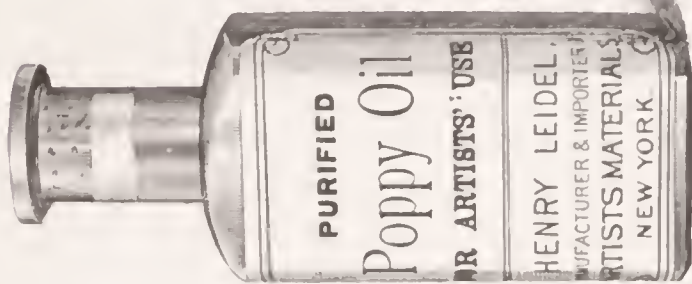
- 127. Aurora Yellow.
- 128. Aureolin.
- 129. Brilliant Ultramarine.
- 130. Burnt Carmine.
- 131. Cadmium Lemon.
- 132. Cadmium Pale.
- 133. Cadmium Yellow.
- 134. Cadmium Orange.

- 135. Capucine Madder.
- 136. Carmine.
- 137. Madder Carmine.
- 138. Mars Orange.
- 139. Purple Madder.
- 140. Violet Carmine.
- 141. Yellow Madder.

**25 CENTS EACH.**



## Oils, Varnishes and Mediums.



		BOTTLES.			
		1 oz.	2 oz.	4 oz.	PINT
No. 1.	Linseed Oil, bleached . . . . . each,	\$0 10	\$0 15	\$0 25	\$0 90
2.	Poppy Oil, purified . . . . . "	10	15	25	90
3.	Nut Oil . . . . . "	10	15	25	
4.	Pale Drying Oil . . . . . "	10	15	25	90
5.	Siccative de Courtray . . . . . "	10	15	25	90
6.	Siccative de Harlem . . . . . "	10	15	25	90
7.	Turpentine, Rectified . . . . . "	8	12	20	—
8.	Amber Painting Oil; this is a new preparation used for mixing with Oil Colors, in place of the ordinary oils or siccatives. It brings out the colors to their full intensity and brilliancy, and acts a drier, while it prevents any cracking of the colors.	—	25	—	—
9.	French Retouching Varnish . . . . . "	—	20	—	1 20
10.	White Picture Copal Varnish. . . . . "	15	—	—	1 35
11.	White Damar Varnish. . . . . "	15	—	—	1 35
12.	Picture Mastic Varnish . . . . . "	25	—	—	2 25
13.	Amber Varnish, to be mixed with Oil Colors while painting to give a gloss to same. Can also be used to glaze Plaques, etc. . . . . "	—	25	—	—
14.	Autumn Leaf Varnish . . . . . "	—	20	—	1 20
15.	Bleached Shellac Varnish . . . . . "	—	—	25	—
16.	Liquid Decora, to be used with Oil Colors for painting on Silk, Satin, or any kind of fabric, to prevent the Oil from spreading.	—	25	—	1 50
17.	Milk of Wax; a few drops of this preparation used while painting with Oil Colors, deadens the gloss, but retains the full brilliancy of tint; of great use in church decoration, etc., where there are conflicting lights.	25	—	—	—
18.	Ebony Liquid, to ebonize any material . . . . . "	—	—	25	—
19.	Gold Paint Liquid, to mix with any color . . . . . "	—	15	25	90
20.	Japan Gold Size . . . . . "	—	20	—	—

## CANVAS IN ROLLS.

Each Roll contains six yards and measures about two inches more in width than marked, for stretching purposes.

### (14) Henry Leidel's German, Plain and Single Prime.

FIRST QUALITY LINEN.

27 inches wide.....	per yard, \$0 70	per roll, \$4 05
30 " " .....	" 75	" 4 35
36 " " .....	" 95	" 5 25
42 " " .....	1 10	" 6 00
45 " " .....	1 65	" 9 00
54 " " .....	2 25	" 12 35
62 " " .....	3 10	" 17 00
74 " " .....	4 00	" 21 00

### (15) Henry Leidel's German Roman.

FIRST QUALITY LINEN.

27 inches wide.....	per yard, \$0 80	per roll, \$4 60
30 " " .....	" 95	" 5 25
36 " " .....	1 10	" 6 00
42 " " .....	1 45	" 7 50
45 " " .....	1 90	" 10 00
54 " " .....	2 65	" 13 50

### (16) Henry Leidel's German Twilled.

FIRST QUALITY LINEN.

27 inches wide.....	per yard, \$1 00	per roll, \$5 75
30 " " .....	" 1 20	" 6 75
36 " " .....	" 1 50	" 8 00
42 " " .....	" 1 80	" 10 50

Henry Leidel's First Quality German Canvas is manufactured in Germany, on best English Linen, especially for him, and is warranted to be equal to the best imported Canvas.

### (17) Best French Ordinary.

41 inches wide.....	per yard, \$1 15	per roll, \$12 00
28 " " .....	" 2 25	" 23 50

### (18) Best French Ordinary, Fine.

41 inches wide... ..	per yard, \$1 60	per roll, \$16 70
82 " " .....	" 3 15	" 32 90

### (19) Best French Demy Fine.

41 inches wide.. ..	per yard, \$2 30	per roll, \$24 00
82 " " .....	" 4 50	" 47 00

### (20) Best French Fine.

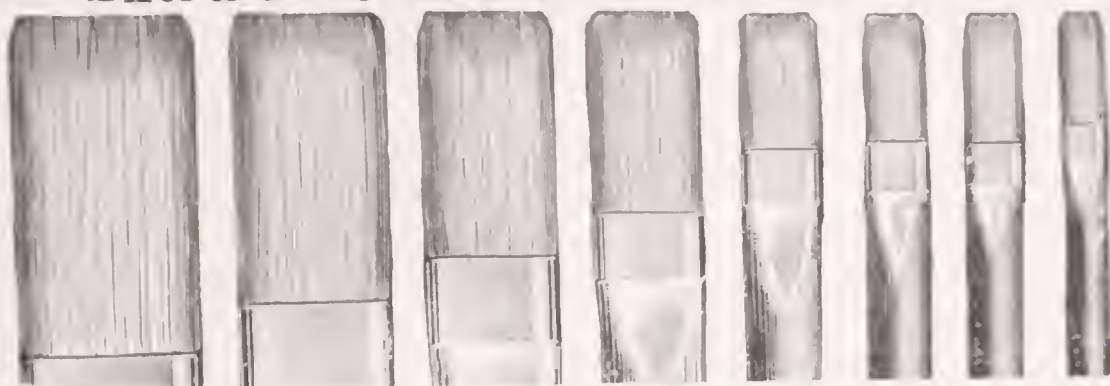
41 inches wide.....	per yard, \$3 60	per roll, \$37 60
82 " " .....	" 7 10	" 74 20

### (21) Best French Roman, Fine.

41 inches wide.....	per yard, \$3 60	per roll, \$37 60
82 " " .....	" 7 10	" 74 20

The French Canvas contains 11 yards in the roll.

(76)

**Henry Leidel's****Extra Fine Artists' Bristle Brushes.**

Nos 6

5

4

3

2

1

0

(0)

THICK HAIR. ROUND AND FLAT. POLISHED CEDAR HANDLES.

No. 00	.....	each, \$0 04	No. 3	.....	each, \$0 08
" 0	.....	4	" 4	.....	8
" 1	.....	6	" 5	.....	10
" 2	.....	6	" 6	.....	10

Assorted dozen, Nos. 1 to 6 .. \$0 90

**Extra Large Sizes.**

ROUND.

FLAT.

No. 14	.....	each, \$0 13	$\frac{1}{4}$ inch	.....	each, \$0 13
" 16	.....	" 14	$\frac{1}{3}$ "	.....	14
" 18	.....	16	1	.....	16
" 20	.....	18	$1\frac{1}{8}$	.....	18
" 22	.....	20	$1\frac{1}{4}$	.....	20
" 24	.....	22	$1\frac{1}{2}$	.....	22
" 26	.....	24	$1\frac{3}{4}$	.....	24

(77)

**Henry Leidel's****Extra Fine Bright's Bristle Brushes.**

Nos, 6

5

4

3

2

1

THIN HAIR. FLAT. POLISHED CEDAR HANDLES.

No. 00	....	each, \$0 04	No. 3	....	each, \$0 08
" 0	....	4	" 4	....	8
" 1	....	6	" 5	....	10
" 2	....	6	" 6	....	10

Assorted dozen, Nos. 1 to 6 .. \$0 90

**Extra Large Sizes.**

No. 7.	$\frac{1}{4}$ inch	each, \$0 11	No. 10.	$1\frac{1}{4}$ inch	each, \$0 20
" 8.	$\frac{1}{2}$ "	16	" 11.	$1\frac{3}{4}$ "	22
" 9.	$1\frac{1}{8}$ "	18	" 12.	$1\frac{1}{2}$ "	24

(83)

## Henry Leidel's Extra Fine Red Sable Brushes. Pure Stock. Full Sizes.



FULL HAIR.      ROUND AND FLAT.      POLISHED CEDAR HANDLES.

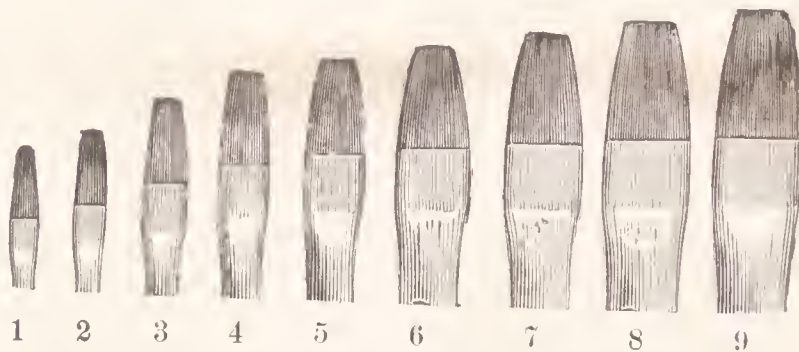
No. 1 .. .. . each, \$0 07	No. 7.....each, \$0 16
" 2 .. .. . " 8	" 8....." 18
" 3 .. .. . " 9	" 9 .. .. . " 20
" 4....." 10	" 10. ...." 22
" 5....." 12	" 11 .. .. . " 24
" 6....." 14	" 12....." 26

### Extra Large Sizes.

No. 13.....each, \$0 35	No. 16.....each, \$0 75
" 14 .. .. . " 45	" 18 .. .. . " 95
" 15....." 55	" 20 .. .. . " 1 15

(84)

## Henry Leidel's Extra Fine Bright's Red Sable Brushes. Pure Stock. Full Sizes.



Nos      1      2      3      4      5      6      7      8      9

THIN HAIR.      FLAT.      POLISHED CEDAR HANDLES.

No. 1. . . . . each, \$0 12	No. 6 .. .. . each, \$0 30
" 2....." 14	" 7....." 35
" 3....." 17	" 8....." 40
" 4 .. .. . " 20	" 9....." 45
" 5....." 25	

### Extra Large Sizes.

No. 10. $\frac{5}{16}$ inch wide. each, \$0 60	No. 16. $\frac{5}{8}$ inch wide. each, \$1 50
" 12. $\frac{3}{8}$ " " " 85	" 18. $\frac{3}{4}$ " " " 2 00
" 14. $\frac{1}{2}$ " " " 1 10	" 20. $\frac{7}{8}$ " " " 2 75





